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DEFENSE SCIENCE BOARD

OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

25 November 1980

MEMORANDUM FOR DISTRIBUTION LIST

SUBJECT: DSB Summer Study on Chemical Warfare

Attached is an Executive Summary of the DSB Summer Study on Chemical Warfare. Because of the extensive interest, this summary is being distributed to interested DoD offices pending publication of the final report.

Carol Yarnall

Carol A. Yarnall
Lt. Colonel, USAF
Executive Secretary
Chemical Warfare Summer Study

Attachment:
As Stated

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Executive Summary of DSB Summer Study on Chemical Warfare

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CHEMICAL WARFARE SUMMER STUDY (U)

EXECUTIVE SUMMARY

OCTOBER 1980

Internal DoD Working Document

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Declassify on
Review on 8 October 1986
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CHEMICAL WARFARE SUMMER STUDY (U)

Executive Summary

October 1980

Internal DoD Working Document

(This document is intended to provide interim information to enhance implementation of Study recommendations prior to publication of the final report. This document will be superseded by publication of the final report.)

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DSB CHEMICAL WARFARE SUMMER STUDY

I. EXECUTIVE SUMMARY

(U) Recent events in Laos, Kampuchea, and Afghanistan have highlighted chemical warfare as an aspect of military concern to the United States. Consequently, the Secretary of Defense and the Under Secretary of Defense (Research and Engineering) requested that the Defense Science Board (DSB) study chemical warfare (CW) as one of its 1980 Summer Study topics. The study addressed six issues: arms control and national security policy, intelligence, CW weapons delivery capability, the CW protective posture, demilitarization, and the status of CW science and technology.

A. THE THREAT

(S) In order to establish the dimension of the problem, as well as to address the intelligence issue, the DSB panel spent a considerable time reviewing what is and is not known about the Soviet CW posture and policy. The panel found a disturbing paucity of specific intelligence information on Soviet production capacity, quantities and nature of CW stocks, forward deployments, plans and training for offensive use, activities which might be warning indicators of offensive use, and technical developments, both offensive and defensive, especially regarding new agents and antidotes. These deficiencies stem both from insufficient collection and from insufficient analytical effort devoted to this topic by the intelligence community. The community clearly lacks a strong integrating focus on CW matters.

(S) One of the panel's recommendations for improved CW intelligence is that increased resources--particularly people--be committed to the task. Examples of intelligence issues that deserve immediate attention are: first, undertaking a zero-base estimate of the composition and size of the Soviet stockpile. Second, improving our information on the current operational capability of Soviet forces to use chemical agents and our ability to discern indications of such an attack. Supportive of this task, the panel recommends that the intelligence community perform detailed analyses of Soviet exercises, including naval exercises, to assess intended roles for chemical warfare. Third, case studies on the chemical warfare capabilities of Cuba, Egypt, and other countries would be especially useful. Finally, Soviet research and development in relevant

fields of technology should be examined in considerable detail to avoid technological surprises.

(S) Despite critical intelligence shortfalls, however, the evidence of large numbers of Soviet personnel dedicated to CW, their extensive protective equipment, the design of assault equipment, and their extensive doctrine for operations in a CW environment persuaded the DSB CW panel that:

(1) The Soviets have a capacity for large-scale production of chemical munitions and have a significant inventory of usable CW weapons, although the exact size cannot be determined;

(2) The Soviets currently have the capability to fight in a CW environment;

(3) The Soviets are capable of exploiting the use of chemical warfare and could thus gain considerably by employing chemical weapons against the current U.S. and allied forces.

(4) Given these circumstances, there is little basis to doubt that the Soviets would use CW in a NATO war.

B. CW POLICY AND POSTURE

(U) Current U.S. policy on chemical warfare stems from the 25 November 1969 Presidential Directive which:

- (U) Encouraged a comprehensive ban on biological weapons but rejected a joint ban on both chemical and biological weapons;
- (U) Reiterated the long-standing U.S. policy of no first use of lethal chemicals and extended that policy to cover incapacitating agents;
- (U) Submitted to the Senate the 1925 Geneva Protocol banning first use of chemical weapons. (Ratification took place in 1975).

(S) President Carter updated U.S. CW policy with two Presidential directives. In June 1977, PD/NSC-15 called for maintaining CW forces without improvement and pursuit of a bilateral approach to a treaty on chemical weapons. In January 1978, PD/NSC-28 aimed at a comprehensive treaty to ban chemical weapons and continued the policy of maintenance

of the U.S. offensive stockpile without improvement.

(S) In examining options, the DSB panel stipulated our continued commitment to no first use, increased attention to CW proliferation and potential threats of terrorism and sabotage, and continued support for improved CW defenses. The panel also considered possible impacts of recommendations on arms control negotiations and on U.S. and foreign opinion. The panel concluded that the current CW posture that has emerged from our current CW policy constitutes a significant risk to national security. Our inadequate chemical protective posture is an invitation to Soviet employment of CW in future confrontations and conflicts. Our inability to respond in kind except at best after a considerable lag means that the Soviets could perceive an early decisive military advantage to be gained. In the face of a Soviet chemical attack, the United States would be forced to choose between suffering the disadvantage without response or escalating the conflict by use of nuclear weapons. The United States has three current policy options to meet this vulnerability:

Option 1. (S) Do nothing and allow a continued decline in CW capability. The usable U.S. chemical stockpile currently contains 4,100 agent tons. It is estimated that this will decay (because of munitions deterioration, and phaseout of certain delivery systems) to approximately 2,500 agent tons by 1990.

Option 2. (S) Improve defensive capability and vigorously implement the current policy of maintenance of the current unitary stockpile. At present there are about 4,900 agent tons of unserviceable but repairable munitions, which if returned to serviceable condition would be compatible with current delivery systems. A maintenance program has been designed which could reach completion in 1986 with a total useful stockpile of 7,400 agent tons.

Option 3. (S) Improve the U.S. CW posture by building binary chemical weapons, while further beefing up defensive capabilities, and concurrently pursuing option 2 above.

The DSB panel recommends Option 3, that the defensive posture continue to be improved and that the offensive posture also be improved, through binary munitions, in order to serve as a deterrent to Soviet offensive CW use.

(S) The binary munitions are recommended as the most sensible means available to establish a realistic deterrent because of their obvious advantages over the earlier generation unitary munitions in terms of safety, security, transportability, deployment, use, and demilitarization.

C. WEAPONS DELIVERY POSTURE

(S) The DSB panel concluded that current U.S. weapons delivery capability has numerous serious shortfalls. Quantitatively, our stocks of ready weapons are inadequate for even our most limited needs. In addition, only a few of the usable munitions are forward based, and these at a single site in the FRG. Qualitatively, most of our weapons are short range, and none of our forward deployed weapons are air deliverable. Very few of our usable munitions contain persistent agents suitable for long-term area denial.

(S) In addition to inadequate stocks of weapons, the panel found inadequate plans and training for employment or for increased forward deployment. The release procedures for chemical munitions are complex, unformatted, and unexercised. This would confuse or delay the use of these weapons should the National Command Authority decide that a chemical response was required.

(S) The panel notes the inadequacy of assessment of plausible CW munitions requirements and of realistic concepts of operations in a CW environment. Existing requirements vary greatly with assumptions as to the duration and areas of conflict, and the current JCS requirement of 30,000 agent tons for Europe alone has questionable underpinnings. A major recommendation of the panel is that the JCS and the Services develop realistic concepts of operations and CW weapons requirements based on deterrence and including scenarios other than Central Europe.

D. CHEMICAL WARFARE PROTECTION

(S) The panel estimated that chemical attacks on unprotected personnel can achieve casualties tenfold or higher than with conventional payloads. Casualty figures would be much lower with protection; however, operational degradation caused by the protection is estimated to be between 30 and 50

percent. These vulnerabilities are an attractive inducement to the surprise use of chemical weapons in crucial theaters and a temptation to the violation of treaty strictures. Accordingly, it is essential to develop and implement a CW protective posture which allows forces to continue combat operations at a level that reduces the force multiplier effect of enemy use of CW that results from our need to "suit up" in response.

(S) From a conceptual and operational as well as technical viewpoint, the panel found numerous shortfalls in the evolving protective posture, including the DoD failures to (1) develop any CW protective doctrine, (2) acquire adequate protective materiel; (3) conduct operational tests and large-scale joint exercises with prolonged exposure to simulated CW agents in full mission-oriented protective posture, (4) seriously address CW training by initiation of realistic exercises entailing psychological stress and heat effects, (5) address sustainability and logistics problems, particularly with respect to vulnerable facilities (ports, command/control/communications and alert facilities) and (6) address voids in medical doctrine, medical force structure, training, and equipment. The panel believes that even if the present 5 year acquisition plan is followed, there will remain many important deficiencies.

(S) In sum, the panel found that our CW protective posture has been frozen operationally since 1970 and technologically since 1960. Recommendations include increased funding to speed acquisition of currently available equipment, especially collective protection equipment. Additionally, increased funding is necessary to speed development of improved detection and warning, individual and unit protection, decontamination, and antidotes. Since CW battlefields may generate service casualties on a scale unprecedented in numbers and in the intensity of care needed for eventual recovery and rehabilitation, improvements in medical doctrine, medical force structure, training, and equipment are of critical importance.

E. CROSS-CUTTING ISSUES

(U) Four cross-cutting issues were addressed by the panel.

(S) The need for intensified defensive and offensive CW training at every level is especially clear. To date, primary concern has been placed only on individual or single-service small unit training in protective equipment. Major new emphasis needs to be placed on training and exercises. Such

training should include practice of efficient weapons delivery while suited up, medical support to the injured while operations continue, and effective command and control in a CW environment.

(S) An absolutely critical aspect of our CW posture is demilitarization. There are 730,000 unserviceable and unrepairable munitions in our CW stockpile today. This number will continue to grow along with the number of leaking chemical weapons, which now exceeds 1,000. These weapons are costly to store and guard, and represent potential safety and physical security hazards. These stocks will remain an environmental problem until they are detoxified.

(S) The panel found that current Army efforts to demilitarize CW weapons are inadequate. The Army's current concept is too slow and small in scale to even qualify as a modest "industrial" demilitarization process. The panel recommends that CW demilitarization be viewed in the context of the nation's entire toxic waste disposal problem, that a DoD project manager for CW demilitarization be designated, and that $20-30 million/year be invested beginning FY 1982 to develop alternative systems designs by the chemical industry. The demilitarization problem will cost the nation between $2-4B to resolve in 1980 dollars.

(U) The DSB panel determined that DoD generally, and the Office of the Secretary of Defense most especially, is not well structured to oversee the management of CW policy and resource issues. Within OSD, responsibility for individual tasks related to CW management is not clearly defined, and there is no single spokesman for critical CW matters in a forum where policy, programming, and budgeting issues are raised. Accordingly, the panel recommends that the Secretary of Defense establish a CW focal point in OSD now. Furthermore, this official should chair a steering group for CW matters comprised of those offices within OSD which now ambiguously share CW responsibilities. Service Under Secretaries and the Assistant to the Chairman, JCS, should also participate.

(U) The panel strongly recommends also that the DoD undertake a vigorous program to inform Congress, the public and its allies of its positions on chemical warfare matters and the underlying rationales of a new CW policy and supporting programs.